

**WPA 2010 Base Case Summary
for WPA Interim Operations Simulations
February 14, 2001**

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| | WPA Future Without Project Condition 2010 Base Case |
| Climate | Just as for the Existing (1995) Condition, the 1965 to 1995 climatic record was used to evaluate the Future (2010) Without Project Condition. This same climatic record will be used for the evaluation of all plan alternatives. Rainfall and potential evapotranspiration are the key climatic inputs. |
| Topography | |
| Sea Level | For the Future (2010) Without Project Condition the same sea level data as for the Existing (1995) Condition are being used. |
| Population and Socio-Economic Conditions | Projections of 2050 population and socio-economic conditions for all areas except Service Area 3 (most of Dade County) are those contained in <u>Final Report Municipal and Industrial Water Use Forecast Lake Okeechobee Regulation Schedule Study</u> prepared for the U.S. Army Corps of Engineers Jacksonville District, August 1996. The projections contained in that report are based on those developed by the University of Florida, Bureau of Economic and Business Research were utilized. For Service Area 3, projections in the report cited above were increased to reflect Dade County's estimation of its future population growth as influenced by recent immigration legislation and other factors. 2010 population projections are from the same report. |
| Land Use | <ul style="list-style-type: none"> • Same as 2050. • For the Coastal Basins for 2050, land use projections were based on local government comprehensive plans (which are based on 2010 land use). This is the same as used in the 2010 Restudy simulation. • In the Everglades Agricultural Area land use will be the same as for the Existing (1995) Condition except that the land to be used for stormwater treatment areas will be shifted to that use. • Impacts of changes in land use in the remainder of the Lake Okeechobee Service Area are accounted for through the evaluations of demands. (see below) |
| Natural Area Land Cover (Vegetation) | <ul style="list-style-type: none"> • The 2010 vegetation classes and spatial distribution will remain the same as those proposed for the Existing (1995) Condition. (version 3.5) |
| Urban and Agricultural Water Demands | <ul style="list-style-type: none"> • For all areas, except Service Area 3, the public water supply demands which will be used are those contained in <u>Final Report Municipal and Industrial Water Use Forecast Lake Okeechobee Regulation Schedule Study</u> prepared for the U.S. Army Corps of Engineers Jacksonville District, August 1996. The University of Florida Bureau of Economic and Business Research unrestricted demand set was used. These reflect University of Florida Bureau of Economic and Business Research generated population projections. For Service Area 3 the public water supply demands have been increased to reflect Dade County's estimation of its future population growth as influenced by recent immigration legislation and other factors. These projections included an |

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| | <p>WPA Future Without Project Condition 2010 Base Case</p> <p>estimate for the population in 2010 and a per capita consumption rate, which is applied to the 2010 Base Case. The projected service area demands account for the expected implementation of water conservation (implementation of ultra-low flow fixtures and lawn sprinkler restrictions in residential and commercial land use). These are the same projections used in the Restudy 2010 Implementation Schedule simulations.</p> <ul style="list-style-type: none"> • Irrigation demands in the Lower East Coast Service Area are based on projected land use and climatic variables. • Irrigation demands for the Everglades Agricultural Area reflect the construction in the Stormwater Treatment Areas • Caloosahatchee River Basin demands increase by 40% from the Existing (1995) Condition based on Mazzotti's IFAS Citrus Study (Same as 2010 Restudy) • St. Lucie Canal Basin demands remain the same as the Existing (1995) Condition based on projected land use and include the demand associated with the Florida Power and Light reservoir at Indiantown which will increase up to the existing permitted demand. (Same as 2010 Restudy.) • The Upper East Coast rainfall-runoff relationship will be the same as that used in the Existing (1995) Condition. |
| <p>Physical Facilities & Operations - Lake Okeechobee & Lake Okeechobee Service Area</p> | <p>Four changes are associated with the Everglades Construction Project as mandated by the Everglades Forever Act. They are:</p> <ul style="list-style-type: none"> • Stormwater Treatment Areas (Same as 2050) • No L-8 water directed to Lake Okeechobee • Water quality entering Water Conservation Areas assumed to be that produced by Phase 2 of the Everglades Construction Project • Additional Everglades Agricultural Area lands previously draining to Lake Okeechobee now drains to the Everglades Protection Area • LOK Schedule same as 2050 Base Case. • More information on these components are described in the footnote.¹ <p>Other changes are:</p> <ul style="list-style-type: none"> • Deliveries to Water Conservation Areas up to annual average Best Management Practices Replacement Water Rule volumes. • Kissimmee River Restoration and the Headwaters Revitalization Project, which will change the timing and amount of water flowing from the Kissimmee Basin into Lake Okeechobee.² • Strengthening of the Herbert Hoover Dike. |
| <p>Physical Facilities & Operations –</p> | <p>1995 water management system and practices with the following changes:</p> <ul style="list-style-type: none"> • No net outflow from Water Conservation Areas if water levels is less than Minimum Level marsh triggers or less than minimum operating criteria in canals of the Loxahatchee National Wildlife Refuge (WCA-1): 14 ft., |

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| Water Conservation Areas, Holey Land Wildlife Management Area and Rotenberger Wildlife Management Area | <p>WCA-2A: 10.5ft., WCA-3A: 7.5ft. Marsh level triggers will be those used in the Draft Lower East Coast Regional Water Supply Plan alternative 5.</p> <ul style="list-style-type: none"> • Rainfall driven operational criteria for determining timing of deliveries to and discharges from WCA 2A and 3A with quantity adjusted to approximate Best Management Practices Replacement water quantities. • Structural modifications per federally authorized Modified Water Deliveries project (same as TSP and 2050) • Structural features of the Holey Land Wildlife Management Area are to be consistent with the Everglades Construction Project and operations consistent with the Existing (1995) Condition. • Operations of the Rotenberger WMA are to be consistent with the Everglades Construction Project (December 1997 design of STA 5 and STA 6). <p>The topography in WCA-3B will be the same as that used in the Existing (1995) Condition.</p> |
| Physical Facilities & Operations – Everglades National Park | <p>1995 water management system and practices with the following changes:</p> <ul style="list-style-type: none"> • The Federally authorized Modified Water Deliveries to Everglades National Park Project using S-12s, S-333 and S-355 to deliver water to meet NSM based targets in ENP. This is similar to 2050 Base Case operations.³ • Federally authorized C-111 Project for Taylor Slough and East Panhandle.⁴ |
| Physical Facilities & Operations – Lower East Coast Service Area | <p>1995 water management system and practices with the following changes:</p> <ul style="list-style-type: none"> • Wellfield expansion and locations in Service Areas 1, 2 and 3 based on the Lower East Coast Regional Water Supply Plan⁵ • Broward secondary canal recharge network based on the Interim Lower East Coast Regional Water Supply Plan. Same as 2050 Base Case.⁶ • Selected elements of L-8 project⁷ • Northwest Dade Lake Belt area- assume that the conditions caused by the currently permitted mining exist and that the affects of any future mining are fully mitigated by industry. • Western C-4 Structure (S-380) Critical Project constructed. Operations differ for wet and dry seasons.⁸ • Operational adjustments to try to maintain water levels in primary coastal canals at Minimum Levels in the Biscayne Aquifer as proposed in the Lower East Coast Regional Water Supply Plan. • C-11 Water Quality Treatment Critical Project (S-381 and S-9A)⁹ • 55 MGD Miami-Dade County aquifer recharge facilities are included as per Miami-Dade Biscayne Aquifer Special Report. • C-4 Flood Mitigation Project. Includes 410 and 434+/- acre impoundments to store storm water from C-4 Basin.¹⁰ |
| Physical Facilities & | <p>1995 water management system and practices with the following changes:</p> <ul style="list-style-type: none"> • Estimated inflows from Western basins according to Everglades Construction Project |

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| Operations – Western Basins and Big Cypress | <ul style="list-style-type: none"> • Big Cypress Seminole Reservation irrigation demands increase reflecting the Seminole Compact.¹¹ |
| Region-wide Water Management and Related Operations | The assumptions for the Future (2010) Without Project Condition are the same as for the Existing (1995) Condition. |

¹ The components of the Everglades Construction Project are:

- Stormwater Treatment Areas – These 6 areas will cover more than 40,000 acres and will reduce the amount of phosphorus and other constituents in stormwater runoff before it enters the Everglades Protection Area. Associated facilities will improve the distribution of water as it enters the Everglades Protection Area to help recreate sheet flow conditions. Other improvements include enhanced flood protection for the C-51 basin,
- Water quality entering Water Conservation Areas assumed to be that produced by Phase 2 of the Everglades Construction Project – The Everglades Forever Act requires that future inflows to the Everglades Protection Area meet future established standards for phosphorus or a default standard of 10 parts per billion. Because it is not certain what the phosphorus standards will be or what will be implemented without the C&SF Restudy to achieve those standards, the Future (2050) Without Project Condition assumes water entering the Everglades Protection Area will be of the quality produced by the Stormwater Treatment Areas. The alternatives of the Restudy will include as components those additional facilities needed to achieve the best estimate of the future standards.
- Additional Everglades Agricultural Area basins previously draining to Lake Okeechobee now drain to the Everglades Protection Area – As part of the requirements of the Everglades Forever Act, much of the water previously discharged to Lake Okeechobee from the East Beach, East Shore, 715 Farms and South Shore drainage districts will be routed to the Stormwater Treatment Areas and the Everglades Protection Area.

² The Kissimmee River Restoration Project will result in the backfilling of 29 miles of the C-38 Canal and the excavation of 11.6 miles of new river channel. This will restore a significant portion of the Kissimmee River and about 29,000 acres of wetlands. To provide the water in the timing and quantities needed for the restoration of the River, the Headwaters Revitalization Project is being undertaken. It includes modifications of the regulation schedules for the Upper Chain of Lakes and associated canal and water control structure modifications. The Headwaters Revitalization Project will also provide ecological benefits within the Upper Chain of Lakes Area. The impact of this project on Lake Okeechobee is that the timing of inflows to Lake Okeechobee will be changed and approximately 1.6% less water will enter the Lake from the Kissimmee River due to additional evapotranspiration upstream.

³ The Modified Water Deliveries to Everglades National Park Project provides structural modifications to enable the restoration of more natural water flows to Shark River Slough in Everglades National Park. Components include structures to improve conveyance from WCA-3A to WCA-3 B and from WCA-3B to Everglades National Park, removal of an existing levee and canal (L-67 Extension) within Everglades National Park, a seepage control levee, canal and pump station to prevent additional flooding in the 8.5 square mile area, floodproofing of a Miccosukee Indian Camp and a pump station to return captured seepage water to Shark River Slough.

⁴ The C-111 project consists of structural and non-structural modifications within the C-111 basin, which will improve hydroperiods in Taylor Slough, Shark River Slough and the eastern Panhandle areas of the Everglades. It will maintain flood protection within the agricultural areas adjacent to C-111. The C-111 Project Canal operations will be consistent with the authorized levels (aka Base '83) as recommended by SERA.

⁵ Lower East Coast Regional Water Supply Plan provides for relocation of future and some existing withdrawals from existing (1995) wellfields based on utility

preferred locations. Demands shifted to new wellfields are identified in the Lower East Coast Regional Water Supply Plan (LEC-1R).

⁶ This component is to be implemented as a result of the Interim Lower East Coast Regional Water Supply Plan and includes pump stations and structures which would maintain higher levels in secondary canals in eastern Broward County between the Hillsboro and the North New River Canals during the dry season. The selected canals are located where recharge from the canals would help to hold back the salt water front and protect the production capability of wellfields to the east.

⁷ These projects will be implemented as a result of the Interim Lower East Coast Regional Water Supply Plan. It includes a structure and pump station from C-18n to the Loxahatchee Slough, an improved conveyance from the West Palm Beach's Water Catchment Area to the Loxahatchee Slough aquifer storage and recovery wells at the West Palm Beach Water Catchment Area or the Indian Trails Improvement District and a coastal recharge delivery system.

⁸ S-380 dry season operations: at 4.2' NGVD gate open, at 4.0' NGVD gate is stationary, at 3.8' gate is closed. The optimum stage of 4.0 ft will allow for seepage reduction to be extended from G-119 to S-380. Also, when supplemental water supply deliveries from WCA 3 are made to supply water needs in eastern Dade Co via L-30 or L-29 canals, S-380 will be opened in conjunction with G-119 and water levels may vary from the optimum. During the wet season the gate is open to maintain control of this reach with G-119. If water levels are low, this structure may be operated for water supply even during the wet season months.

⁹ S-9A operates when C-11 Canal is at 4.0 ft NGVD until stages reach 3.5 ft NGVD. The S-381 spillway divides the canal reach.

¹⁰ C-4 Mitigation Project recommended by Miami-Dade Flood Task Force in 2001. Construction of two impoundments is expected to begin in 2002. The C-4 Canal will be backpumped when C-4 Canal (T-5) > 5.0 ft NGVD and the maximum depth is 4.0 ft.

¹¹ The estimated irrigation demands for the Big Cypress Seminole Reservation will be supplied by local sources first then by the regional system. While deliveries to this area to meet irrigation demands are increased as compared to the Existing (1995) Condition, no increase in runoff is assumed.